PESTICIDE USAGE MEETING

Overview of Pesticide Usage Data Sources

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The Importance of Pesticide Usage Statistics

- Reflects observed agricultural and nonagricultural practices
- Differentiate between label use and actual usage
 - Compare potential and likely risk
 - Refine risk assessment
 - Support decision making

Who Collects Usage Data?

Main sources

- US Department of Agriculture (USDA)
- CA Department of Pesticide Registration (CADPR)
- Kynetec
- Kline

Other sources

- Other Federal Agencies
 - e.g. Bureau of Land Management
- Few States
- Some crop associations

Principal Sources of Usage Data

Agricultural

- USDA National Agricultural Statistics Service (public)
 - Census of Agriculture
 - Agricultural Chemical Usage Reports
- CADPR Pesticide Usage Reporting System (public)
- Kynetec (proprietary)

Non-agricultural

- Kline (proprietary)

Quality Requirements

- EPA Quality System Policy (CIO 2106.0)
 - Data of type and quality needed and expected for the intended use
 - Standard is to use the best available data
- Documented quality assurance procedures
 - Statistical methodologies
 - Survey design
 - Credibility, Comparability, Relevance, Completeness
- For Reference
 - USDA National Agricultural Statistics Service (NASS)
 - https://www.nass.usda.gov/Publications/Methodology_and_Data_Quality/index.php
 - CADPR
 - www.cdpr.ca.gov/docs/pur/purmain.htm
 - Proprietary Sources (Kynetec, Kline)
 - Quality Management Plans
 - Statement of Data Quality

Publicly Available Sources

- USDA NASS
 - Census of Agriculture

CENSUS OF AGRICULTURE
YOUR VOICE, YOUR FUTURE, YOUR OPPORTUNITY.

Agricultural Chemical Usage Reports (NASS)



• CADPR



Census of Agriculture

• Scope:

- Complete count of U.S. ag operations
 - Operations that produce >\$1000 of commodity in a survey year
- Conducted every five years
- For each operation
 - What is produced
 - Where produced
 - How much produced
 - Some information about production practices

Strengths:

- Authoritative source of crop production info in the US
- Uniform, comprehensive, impartial



Agricultural Chemical Use Survey (NASS)

Scope:

- 90 Use Sites
- 42 States
- 731 Als

Program state selection:

- Ensure ≥ 80% coverage of target commodity acreage
- Top-producing states, to minimize the total number of states selected.

Reporting:

- Approximately every other year (depending on study)
- At program state level
- Aggregated across all program states



Strengths of NASS Data

- Widely recognized source of statistics about onfarm chemical use and pest management practices
- Used as a standard to help validate data from other sources
- Crops only surveyed by NASS on the national level
 - blueberries, eggplant, honeydew, oats, and specific caneberries (blackberries and raspberries)



CADPR Pesticide Usage Reporting System

Scope:

- Complete reporting from
 - Agricultural applicators
 - Professional pesticide applicators
- All Als used
- All use sites treated

Reporting:

- Reported to DPR system on a continuous cycle
- Published annually



Strengths of CADPR Data

- The full usage reporting program =
 - Comprehensive state usage data
- Many crops grown almost exclusively in CA =
 - Comprehensive <u>crop</u> usage data
- Includes data on very small acreage crops
 - Can be only source of info for these crops
 - e.g. Napa Cabbage, Bok Choy, Daikon, etc.
- Supports comparability evaluation of other data sources

Proprietary Data Sources

Kynetec





Kynetec Survey

Scope:

- Cover 60 unique crops
 - Herbicides –60 crops
 - Insecticides 57 crops
 - Fungicides 53 crops
 - Nematicides 45 crops
 - Growth Regulators 11 crops
- Reports usage for 389 Als

• States:

- 45 States surveyed for one or more crops
- Target approx. 95% coverage of row crop acreage
- Target approx. 80% coverage of specialty crop acreage

Reporting:

- Surveys conducted annually
- Published annually



Strengths of Kynetec Data

- Covers:
 - Majority of agricultural production
 - Highest acreage states for each crop
 - Only source for pest specific information
- Comprehensive database:
 - Can be dynamically analyzed/aggregated
 - Allows for easy data exploration

Non-Agricultural Data

Kline





Kline Survey

Scope:

- Non-ag market sector information
- Combo of structured survey and unstructured expert interviews
- e.g. consumer, turf, pro. pest management, vegetation management, mosquito control, etc.

Location selection:

Sampling frame influenced by market size and share information

Reporting

- Conducted approx. every other year
 - (dependent on market demand)
- National level
- Regional available for some studies



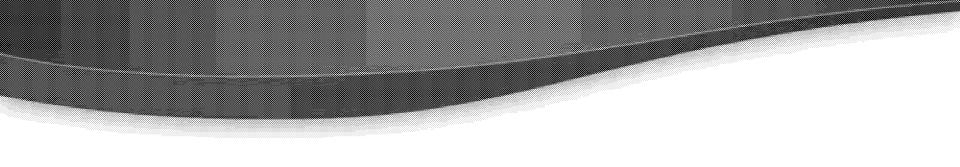
Strengths of Kline Data

- Our only source of non-agricultural data
- Narrative descriptions of data
- Studies go back many years

Limitations of Available Usage Data

- There's no such thing as perfect data
 - Not all crops are covered (e.g. some minor crops, sugarcane)
 - Not all states are covered (e.g. small market states)
 - Not all methods are included
 - e.g. we no longer have information for seed treatment
 - Reporting parameters may differ between sources
 - Survey frequency can be sporadic for some use sites

These limitations do not affect the quality of the data that we have. The majority of uses are included in one or more of our usage sources!



Questions?

Usage Trend

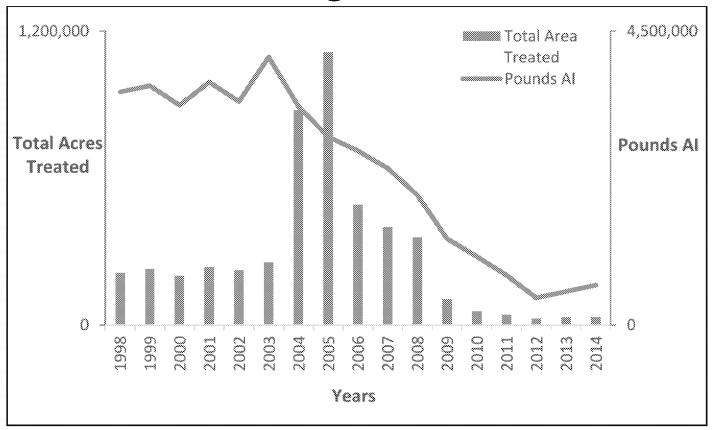


Figure 1. Diazinon Total Acres Treated and Total Pounds A.I. Applied (1998-2014).

Source: Market Research Data (MRD). 1998-2014

National Ag Usage

Table 1. National Diazinon Agricultural Usage by Crop. Data Averaged Over Reported Years.

Crop	Survey Status	Avg. Annual Pounds AI Applied*	Avg. Annual Total Acres Treated‡	Avg. AI Rate	Max Labeled Rate
Cucumbers	MRD (2010-2014)	1,590	1,130	1_41	4
Apricots	MRD (2010-2014)	Insufficient num	2		
Hazelnut	MRD (2010-2014)	Surve	0.5		
Beets (Red and Table)	Not Surveyed at National Level				4

State Ag Usage

Table 2. Diazinon Agricultural Usage by Crop and State.

Crop	Survey Status	State	Avg. Annual Crop Acres Grown†	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Cucumbers	MRD (2010-2014)	California	8,300	400	0	11	7
		Florida	24,500	(S)	0	5	2
		GA, MD, MI, MO, NC, SC, TX, WA, WI	Surveyed but no usage reported				
	NASS (2011)	Washington	7,75 8	2,600	34	47	41
Blueberries		Georgia	11,565	3,350	23	25	24
		Oregon	8,484	950	16	17	17
		New Jersey	8,802	800	8	19	14
		Michigan	18,776	Insufficient number of reports to establish an estimate.			
		North Carolina	5,776	Insufficient number of reports to establish an estimate.			
Figs	CADPR (2010-2014)	California (96%)	6,787	208	0	7	2.7
Beets (Red	CADPR	California (12%)	2,730	160	0.4	1.6	0.8
and Table)	(2010-2014)	Other states (88%)	Crop grown in other states, but not surveyed at national level				

Non-Ag Usage

Table 3. Diazinon Non-Agricultural Usage by Site. 2009.

Crop	Survey Status	State	Avg. Annual Total Lbs. AI Applied	Percent of Operations 2006	Percent of Operations 2009
Omamentals grown in outdoor nurseries (trees, bushes, herbs, nonflowering plants, flowers, shrubs, vines)	NASS (2006, 2009)	California	90.00	11	23
		Florida	*****	3	3
		Pennsylvania	***	3	3
		Oregon	×-00	5	1
		Texas	ww.	14	1
		Michigan	****	2.	Insufficient number of reports to establish an estimate.
Cattle			Not Surveyed		

Non-Ag Usage

Table 3. National Carbaryl Non-Agricultural Usage by Crop. Data Averaged Over Reported Years.

Стор	Survey Status	Avg. Annual Pounds AI Applied *	Avg. Annual Total Acres Treated ^b	Max Single Labeled Rate ' (lb AI/A)	
Household/Domestic Dwellings Outdoor Premises Applied by Consumers	NMRD (2010, 2012)	3,489,000		9.0	
External Pest Treatments Applied by Pest Management Professionals	NMRD (2012)	6,600	90.90	9.0	
Omamentals (Unspecified): Covers Trees and Plants, Woody Shrubs and Vines grown in Nurseries	NMRD (2012)	36,000	9,000	2.0	
Ornamental Lawns & Turf					
Applied by Lawn Care Operators		77,000	19,000		
Applied by Landscape Contractors		13,000	11,000	8.36	
In Institutional Turf Facilities	NMRD (2012)	9,000	7,000		
Golf Courses	***************************************	127,000	24,000	8.0	
Ornamental Sod Farm (Turf)		30,000	6,000	8.16	
Forest Trees (All or Unspecified), Covers Forested Areas and Rangeland Trees	Not Surveyed at National Level**		2.0		
Non-Cropland Uses: Covers Conservation Reserve Program (CRP), Set Aside Program Acreage, Wasteland, Rights of Way, Hedgerows, Ditch banks, Roadsides.	Not Surveyed at National Level**			1.02	